To: Federal Communications Commission
Re: Deregulatory Review – Request to Revise Obsolete RF Exposure Guidelines and Section 704 of the Telecommunications Act

Submitted via ECFS

Date: April 7, 2025

Dear Commissioners,

I respectfully submit this comment as part of the Commission's ongoing rule review process, to urge immediate action to modernize the United States' wireless radiation policy. Specifically, I urge the FCC to:

1. Revise its dangerously outdated 1996 radiofrequency (RF) exposure guidelines;
2. Comply with the U.S. Court of Appeals' 2021 mandate in *Environmental Health Trust v. FCC*;
3. Reassert local governance by reinterpreting the scope of Section 704 of the 1996 Telecommunications Act;
4. Promote safer, wired broadband alternatives; and
5. Restore public transparency and trust by prioritizing independent science and community input.

These actions are legally necessary, scientifically justified, and ethically overdue.

Executive Summary

This comment is submitted in response to the FCC's March 12, 2025 *Public Notice* ("In Re: Delete, Delete, Delete"), issued pursuant to Executive Order *"Ensuring Lawful Governance and Implementing the President's 'Department of Government Efficiency' Deregulatory Initiative."* It urges the Federal Communications Commission (FCC) to modernize its outdated 1996 radiofrequency (RF) exposure guidelines, and reassert its legal and ethical responsibility to protect public health.

Mounting peer-reviewed research has documented biological harm from non-thermal, chronic RF exposure—well below current FCC limits—including oxidative stress, DNA damage, neurological effects, and harm to vulnerable populations and ecosystems.

The FCC's standards, rooted in mid-20th-century military models, fail to reflect real-world exposure or current science. A 2021 federal court ruling (*EHT v. FCC*) found the Commission's decision to retain its guidelines "arbitrary and capricious," and ordered a full review, which remains unfulfilled.

Additionally, Section 704 of the Telecommunications Act has stripped local governments of authority to protect their communities, while the FCC's inaction has deepened public distrust. An increasing number of Americans perceive the agency as serving industry interests rather than the public good.

The FCC must revise its RF standards, comply with judicial mandates, support independent science, reinforce local governance, and prioritize safer, wired alternatives. Anything less risks further public harm, and loss of institutional credibility.

This is not a technical delay—it is a public health emergency that demands immediate and principled action.

Summary of Concern

The FCC's RF exposure framework—rooted in 20th-century defense research—has failed to keep pace with the wireless technologies it governs. In the decades since the 1996 exposure limits were adopted, the RF environment has changed dramatically, exposing the public to continuous, cumulative, and involuntary low-level radiation through devices such as Wi-Fi routers, smart meters, wearables, and multiple generations of wireless infrastructure. Despite growing scientific evidence of biological harm from non-thermal exposures, current regulations remain anchored to an outdated premise: that only tissue heating is biologically relevant.

Compounding this, the Commission has failed to fulfill its legal obligations under a 2021 court ruling, and continues to apply federal preemption in ways that undermine community governance and public health protections.

I. The 1996 RF Guidelines Are Scientifically Obsolete

Modern wireless technologies originated primarily for military and wartime applications, where short-term exposure was accepted for operational efficiency.[1] The FCC's current RF exposure limits are based on short-term, high-intensity exposures that induce tissue heating, using a reference model derived from a large adult male body type originally developed by military researchers.[2] These limits were never intended to address long-term, low-level, non-thermal exposures, or protect vulnerable populations such as children, pregnant women, or those with chronic health conditions.[1,2]

Since the early 1990s, a vast body of peer-reviewed research has documented biological effects at exposure levels well below FCC limits, including oxidative stress, DNA damage, neurological impairment, endocrine disruption, and reduced reproductive capacity. Major reviews, such as the BioInitiative Report (2007–2022), have compiled over 2,000 studies demonstrating these effects.[3]

Key findings include:

- Increased risk of gliomas and acoustic neuromas associated with long-term use of mobile and cordless phones (Hardell et al.);[4]
- DNA strand breaks and chromosomal instability (Lai & Singh, 1995);[5]
- Increased oxidative stress and free radical formation (Yakymenko et al., 2016);[6]
- Disrupted sperm function and hormonal changes (Agarwal et al., 2008);[7]
- Blood-brain barrier permeability and neural degeneration (Salford et al., 2003);[8]

- Disproportionate absorption in children due to thinner skulls and higher tissue conductivity (Morgan et al., 2014).[9]

These effects have been confirmed across diverse methodologies—epidemiological studies, in vivo and in vitro research, and international health assessments. In addition, concerns were already documented by military agencies in the 1970s. The Naval Medical Research Institute cataloged over 2,300 studies as early as 1971 indicating adverse effects on the immune, nervous, and reproductive systems.[10]

Furthermore, ecologist Alfonso Balmori and others have documented extensive environmental disruption linked to RF radiation, including harm to birds, insects, amphibians, and plant life (Balmori, 2009; 2015).[11] These environmental risks further highlight the inappropriateness of applying military-era RF models to modern civilian infrastructure.

II. Global Scientific Consensus and Appeals

For over two decades, scientists and medical experts around the world have issued formal appeals urging governments and regulators to adopt stricter RF exposure limits and apply the precautionary principle. These declarations highlight the growing evidence of non-thermal biological effects and warn that current standards fail to protect public health—especially among children, the elderly, and those with chronic conditions or electromagnetic sensitivity.[3]

Notable international appeals include:

- **Salzburg Resolution** (2000)
- **Freiburger Appeal** (2002)
- **Benevento Resolution** (2006)
- **BioInitiative Report** (2007–2022)
- **Venice Resolution** (2008)
- **Porto Alegre Resolution** (2009)
- **Seletun Statement** (2011)
- **EMF Scientist Appeal** (2015)
- **5G Appeal to the European Union** (2017)
- **Stop 5G Appeal** (2018)

Together, these appeals represent the voices of hundreds of independent scientists, physicians, and public health professionals. They consistently call for biologically based exposure limits, transparent health education, medical training on EMF-related illness, and a moratorium on new wireless technologies—such as 5G—until their safety is established. The FCC's continued refusal to engage with this international body of consensus underscores its regulatory isolation and the need for an independent scientific review.

III. Regulatory Inaction and Institutional Failure

In the early 1990s, the U.S. Environmental Protection Agency (EPA) was actively working to develop biologically based exposure limits for electromagnetic fields (EMFs). However, in 1995—just before the Telecommunications Act was passed—Congress abruptly defunded the EPA's EMF research program.[12] This effectively eliminated the only federal agency with environmental health expertise from the regulatory process.

Responsibility then shifted to the FCC—an agency that neither conducts biomedical research nor holds a dedicated public health mandate, but is nevertheless required by law to act in the public interest when credible health concerns arise.

Although the Food and Drug Administration (FDA) is nominally responsible for evaluating health risks and advising the FCC, it has consistently deferred responsibility, and failed to act on its own commissioned research.[13]

In 2018, the National Toxicology Program (NTP) published a landmark $30 million study showing "clear evidence" of cancer (heart schwannomas) and DNA damage in rodents exposed to RF radiation.[14] That same year, the Ramazzini Institute in Italy published parallel results using lower, real-world exposures.[15]

Despite these findings, the FDA dismissed the evidence, and refused to recommend updating the FCC's guidelines. In 2023, the FDA formally ceased further investigation into the health effects of wireless radiation—citing staffing and technical challenges.[16]

At the heart of the disconnect is skewed science driven by industry funding and influence. A 2007 meta-review found that industry-funded studies were 10 times less likely to report harmful effects than independently funded ones (Huss et al.).[17] This well-documented funding bias continues to skew scientific interpretation and regulatory decisions.

A comprehensive analysis by Dr. Henry Lai of the University of Washington also found that the outcome of RF radiation studies is strongly influenced by funding source. In a review of studies published from 1990 through 2017, Lai reported that around 70% of independently funded studies found biological effects, while only 32% of industry-funded studies reported such

effects.[18] This stark discrepancy suggests a systemic conflict of interest that has distorted the scientific landscape and undermined the credibility of regulatory decisions. When studies funded by the same industry being regulated are disproportionately less likely to find harm, it raises serious questions about the objectivity of the evidence base used to justify public exposure limits.

IV. International Responses and the U.S. Lag

While U.S. regulators remain inert, peer nations are taking protective actions:

- France has restricted Wi-Fi in early childhood centers and mandated RF exposure disclosures;[19]
- Belgium has prohibited the sale of mobile phones designed for children under age 7 and banned advertising that encourages mobile phone use by this age group;[20]
- Italy's Supreme Court has ruled in favor of plaintiff's citing mobile phone–linked tumors;[21]
- Cyprus and Austria have issued national guidelines and public education campaigns to reduce EMF exposure;[22]
- Switzerland enforces some of the world's most stringent RF limits.[23]

Domestically, the State of New Hampshire became the first in the nation to pass legislation creating a state commission to study the health and environmental effects of 5G and wireless radiation. The bipartisan New Hampshire Commission on 5G Health and the Environment released its final report in 2020, issuing 15 detailed recommendations:

1. Request a federal review of outdated RF safety limits and the 1996 Telecommunications Act;
2. Post public health warnings about wireless radiation, especially targeting children and pregnant women;
3. Label all 5G antennas in public rights-of-way with RF emission notices;
4. Transition schools and libraries from wireless to wired or optical networks within five years;
5. Mandate RF signal strength testing before and after activating wireless infrastructure;
6. Develop improved protocols for measuring harmful high-data-rate impulsive radiation;
7. Require setbacks between wireless antennas and homes, schools, and businesses;
8. Train home inspectors to offer voluntary RF exposure measurements to property buyers and renters;
9. Build a statewide RF exposure map using data from trained home inspectors;

10. Mandate software in phones and wireless devices to disable radiation when near the body;
11. Promote fiber-optic, wired, and optical alternatives to wireless broadband statewide;
12. Encourage independent scientific and medical studies on RF exposure health effects;
13. Encourage public buildings to post RF exposure signs and create wireless-free zones;
14. Develop exposure safety limits to protect wildlife and pollinators from RF radiation;
15. Urge federal environmental review of the cumulative impact of 5G, satellites, and densified networks.

The report emphasized the need for caution, transparency, and public accountability in the rollout of wireless technologies, and highlighted substantial scientific and ethical concerns.[24]

V. FCC Noncompliance with Federal Court Order

In 2021, the U.S. Court of Appeals for the D.C. Circuit ruled that the FCC's decision to retain its 1996 guidelines was "arbitrary and capricious" (Environmental Health Trust et al. v. FCC).[25] The court found that the FCC had failed to address extensive evidence of non-thermal biological effects and public health concerns. It directed the agency to conduct a meaningful review and respond to the scientific record.

To date, the FCC has not done so. This is not merely regulatory neglect—it is noncompliance with a binding federal court order, and a serious breach of public accountability.

VI. Public Trust and the Question of Agency Integrity

In recent years, many Americans have come to view the FCC as a captured agency—one that prioritizes telecom industry interests over scientific evidence and public health. This perception, widely echoed in investigative analyses such as Norm Alster's *Captured Agency*,[26] is reinforced by the Commission's failure to comply with a federal court order, and its dismissal of independent research. It has eroded public confidence in the FCC's institutional integrity.

Public awareness is also growing around conflicts of interest in global institutions, such as the World Health Organization's EMF Project, which was established by a founding member of ICNIRP—an unelected, self-reinforcing private group that sets international RF exposure recommendations. ICNIRP has been widely criticized for its lack of transparency, exclusion of dissenting scientists, and reliance on outdated, thermal-only models.[1] The EMF Project receives industry funding and continues to align its positions with ICNIRP, despite a growing body of contradictory scientific evidence.

By contrast, the International Agency for Research on Cancer (IARC)—the cancer research arm of the WHO—classified RF radiation as a Group 2B "possible human carcinogen" in 2011.[27] Since then, multiple studies—including the U.S. National Toxicology Program and Italy's Ramazzini Institute—have reported "clear evidence" of carcinogenic effects, suggesting that a reclassification may be warranted.[1] Many scientists believe that, absent industry pressure, IARC would have already upgraded the classification to Group 2A ("probable") or Group 1 ("known") carcinogen.

The public is now watching. The FCC must decide whether to remain an agent of deregulation and industry accommodation—or to reclaim its statutory role as a protector of the public interest. This is a defining moment for the Commission's credibility and legacy.

VII. Section 704 of the Telecommunications Act: A Barrier to Local Governance

Section 704 prohibits local governments from regulating wireless infrastructure based on the environmental effects of RF emissions, so long as the facility complies with FCC limits.

This clause has:

- Overridden local zoning authority;
- Prevented community input in siting decisions;
- Facilitated the rapid deployment of antennas near schools, homes, and parks without oversight.

Although only Congress can repeal Section 704, the FCC can act now to clarify that local governments still retain power over:

- Infrastructure siting based on aesthetics, safety, and land-use;
- Historic preservation;
- Public notice and participation procedures.

VIII. What the FCC Can—and Must—Do Now

The FCC retains substantial regulatory authority and public responsibility. It must:

1. **Revise exposure limits** to reflect non-thermal effects and cumulative exposures;
2. **Comply with the D.C. Circuit Court ruling** by fully reviewing and responding to the scientific record;

3. **Reinforce local control** within the limits of Section 704;
4. **Prioritize safer infrastructure**, including wired broadband;
5. **Require public transparency**, especially near homes and schools;
6. **Support independent research and health surveillance**.

Conclusion

The evidence is clear. The science is mature. The courts have ruled. The world is watching. It is time for the FCC to rise to its mandate—to serve the public interest, protect vulnerable populations, and restore transparency and accountability in wireless oversight.

While the FCC does not function as a health agency, its mandate under the Communications Act of 1934 obligates it to regulate in the public interest—including upholding public safety and responding to emerging scientific evidence of health risk. By revising outdated RF exposure limits, complying with the 2021 court order, and supporting independent science and local authority, the FCC can reestablish its credibility, and fulfill its duty to the American people.

Sincerely,

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Milford, PA

References

1. Hardell, L., & Carlberg, M. (2020). Health risks from radiofrequency radiation, including 5G, should be assessed by experts with no conflicts of interest. *Oncology Letters*, *20*(4), 1–10. https://doi.org/10.3892/ol.2020.11876
2. FCC Office of Engineering and Technology. (1997). *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields* (OET Bulletin 65). https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf
3. BioInitiative Working Group. (2007–2022). *BioInitiative Report: A Rationale for Biologically-Based Public Exposure Standards for Electromagnetic Fields*. https://www.bioinitiative.org
4. Hardell, L., Carlberg, M., & Hansson Mild, K. (2013). Use of mobile and cordless phones and survival of patients with glioma. *Neuroepidemiology*, *40*(2), 101–108.
5. Lai, H., & Singh, N. P. (1995). Acute low-intensity microwave exposure increases DNA single-strand breaks in rat brain cells. *Bioelectromagnetics*, *16*(3), 207–210.
6. Yakymenko, I., Sidorik, E., Kyrylenko, S., & Chekhun, V. (2016). Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation. *Electromagnetic Biology and Medicine*, *35*(2), 186–202.
7. Agarwal, A., Desai, N. R., Makker, K., Varghese, A., Mouradi, R., Sabanegh, E., & Sharma, R. (2008). Effects of radiofrequency electromagnetic waves (RF-EMW) from cellular phones on human ejaculated semen: An in vitro pilot study. *Fertility and Sterility*, *89*(1), 124–128.
8. Salford, L. G., Brun, A. E., Eberhardt, J. L., Malmgren, L., & Persson, B. R. (2003). Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones. *Environmental Health Perspectives*, *111*(7), 881–883.
9. Morgan, L. L., Kesari, S., & Davis, D. L. (2014). Why children absorb more microwave radiation than adults: The consequences. *Journal of Microscopy and Ultrastructure*, *2*(4), 197–204.
10. Naval Medical Research Institute. (1971). *Bibliography of Reported Biological Phenomena ("Effects") and Clinical Manifestations Attributed to Microwave and Radio-Frequency Radiation* (Report No. 2). Bethesda, MD: NMRI.
11. Balmori, A. (2009). Electromagnetic pollution from phone masts. Effects on wildlife. *Pathophysiology*, *16*(2–3), 191–199.
    Balmori, A. (2015). Anthropogenic radiofrequency electromagnetic fields as an emerging threat to wildlife orientation. *Science of the Total Environment*, *518–519*, 58–60.
12. U.S. Environmental Protection Agency. (1995). *Termination of the EPA's Non-Ionizing Radiation Research Program*. Internal memorandum.

13. U.S. Food and Drug Administration. (2020). *Scientific Evidence for Cell Phone Safety*. Retrieved April 2025 from https://www.fda.gov/radiation-emitting-products/cell-phones/scientific-evidence-cell-phone-safety
14. National Toxicology Program. (2018). *Toxicology and Carcinogenesis Studies of Cell Phone Radiofrequency Radiation in Hsd:Sprague Dawley SD Rats*. U.S. Department of Health and Human Services. Retrieved from: https://ntp.niehs.nih.gov/whatwestudy/topics/cellphones/index.html
15. Falcioni, L., Bua, L., Tibaldi, E., et al. (2018). Report of final results regarding brain and heart tumors in Sprague-Dawley rats exposed from prenatal life until natural death to mobile phone radiofrequency field representative of a 1.8 GHz GSM base station environmental emission. *Environmental Research*, *165*, 496–503. https://doi.org/10.1016/j.envres.2018.01.037
16. Children's Health Defense. (2024). *Exclusive: Why Did Government End Wireless Radiation Studies Despite 'Clear Evidence' of Harm?* Retrieved from https://childrenshealthdefense.org/defender/us-government-ntp-end-wireless-radiation-studies-biological-effects/
17. Huss, A., Egger, M., Hug, K., Huwiler-Müntener, K., & Röösli, M. (2007). Source of funding and results of studies of health effects of mobile phone use: Systematic review of experimental studies. *Environmental Health Perspectives*, *115(1)*, 1–4. https://doi.org/10.1289/ehp.9149
18. Lai, H. (2017). Radiofrequency Radiation Research: Studies Showing Effects vs. No Effect by Funding Source. In *BioInitiative Report 2017 Supplement*. Retrieved from https://bioinitiative.org/research-summaries/
19. French National Assembly. (2015). *Law No. 2015-136: Law on Sobriety, Transparency, Information, and Consultation Regarding Exposure to Electromagnetic Waves.* Retrieved from https://www.legifrance.gouv.fr/loda/id/JORFTEXT000030212642
20. Belgian Federal Public Health Service. (2016)**.** *Mobile phones and children.* Retrieved from http://health.belgium.be/en/mobile-phones-and-children
21. Italian Supreme Court. (2012). *Judgment No. 17438/12*, Corte di Cassazione.
22. Cyprus National Committee on Environment and Children's Health (2017). *EMF Public Awareness Campaign Materials.* Retrieved from https://paidi.com.cy/?lang=en
Austrian Medical Association (2012). *Guideline for the Diagnosis and Treatment of EMF-Related Health Problems and Illnesses (EMF Syndrome).* Retrieved from https://electromagnetichealth.org/wp-content/uploads/2012/04/EMF-Guideline.pdf
23. Swiss Federal Office for the Environment (FOEN). (n.d.). *Electrosmog: In brief.* Retrieved from https://www.bafu.admin.ch/bafu/en/home/topics/electrosmog/in-brief.html

24. State of New Hampshire Commission to Study the Environmental and Health Effects of Evolving 5G Technology. (2020). *Final Report*. https://gc.nh.gov/statstudcomm/committees/1474/reports/5G%20final%20report.pdf
25. Environmental Health Trust. (2021, August 13). *In historic decision, federal court finds FCC failed to explain why it ignored scientific evidence showing harm from wireless radiation.* https://ehtrust.org/in-historic-decision-federal-court-finds-fcc-failed-to-explain-why-it-ignored-scientific-evidence-showing-harm-from-wireless-radiation/
26. Alster, N. (2015). *Captured Agency: How the Federal Communications Commission Is Dominated by the Industries It Presumably Regulates.* Harvard University Center for Ethics. https://www.ethics.harvard.edu/publications/captured-agency-how-federal-communications-commission-dominated
27. International Agency for Research on Cancer (IARC). (2013). *Non-ionizing radiation, part 2: Radiofrequency electromagnetic fields* (*IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*, Vol. 102). World Health Organization, IARC. https://ehtrust.org/wp-content/uploads/IARC-WHO-Monograph-radiofrequency-radiation-.pdf